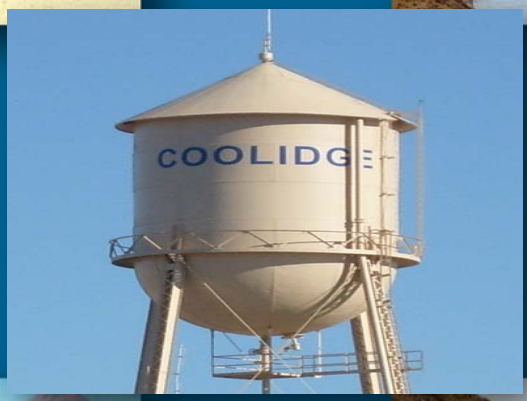
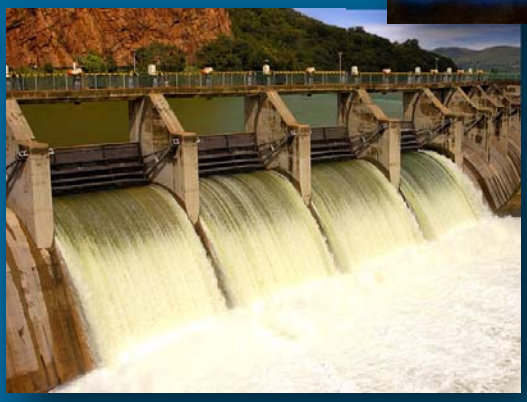
CHAPTER 7: WATER RESOURCES



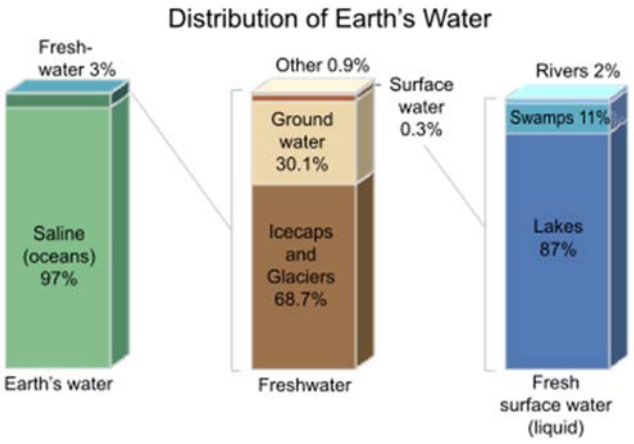


Water Resources Element

INTRODUCTION

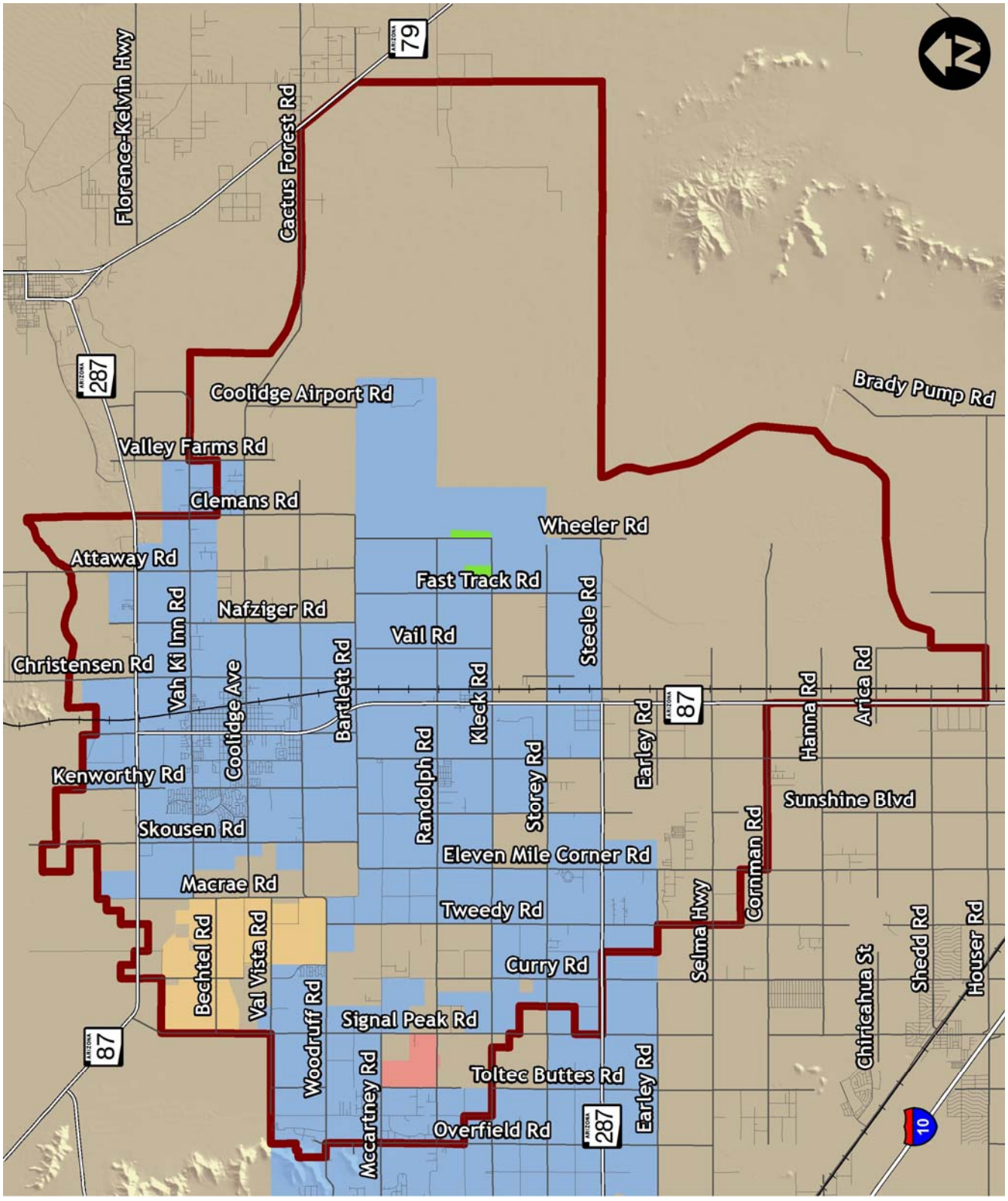
Arizona Water Company ("AWC") is a public service corporation regulated by the Arizona Corporation Commission ("ACC") which owns, operates and maintains the Pinal Valley water system which serves the City of Coolidge and the surrounding areas. AWC prepared the *Water Resources Plan* with AWC's historical information and projections as well as information provided by the City . The *Water Resources Plan* addresses the development and delivery of safe, reliable and adequate water supplies within the City's projected planning area through the year 2025.

The *Water Resources Plan* focuses on issues that influence water availability, supplies and demands through the year 2025. Among the issues are current and future sources of supply, population growth rates and projections, projected water demands and conservation requirements. The *Water Resources Plan* focuses, in a large part, on areas within the City's projected planning area with the highest potential for growth.



BACKGROUND

There are four public service corporations (or water companies) that provide water service within the City's planning area boundary; Arizona Water Company, Carter Water Company, Signal Peak Water Company, and Woodruff Water Company. AWC provides potable water service to residential, commercial, and industrial users and is the largest potable water provider in the Coolidge area with a service area encompassing 68 square miles of the City's planning area. Woodruff Water Company has the second largest service area with approximately five square miles although it serves only a few customers. Signal Peak Water Company and Carter Water Company have the smallest service area with 0.71 and 0.21 square miles respectively. Figure 7.1 shows the ACC-authorized Certificates of Convenience and Necessity areas for water providers in the City's planning area.



WATER COMPANIES WITHIN THE CITY OF COOLIDGE PLANNING AREA BOUNDARY

Portion of Arizona Water Company	Woodruff Water Company	Signal Peak Water Company	Carter Water Company
68 Sq Mi (in PAB)	4.62 Sq Mi	0.71 Sq Mi	0.21 Sq Mi

Figure 7.1 : Certificate of Convenience and Necessity Areas

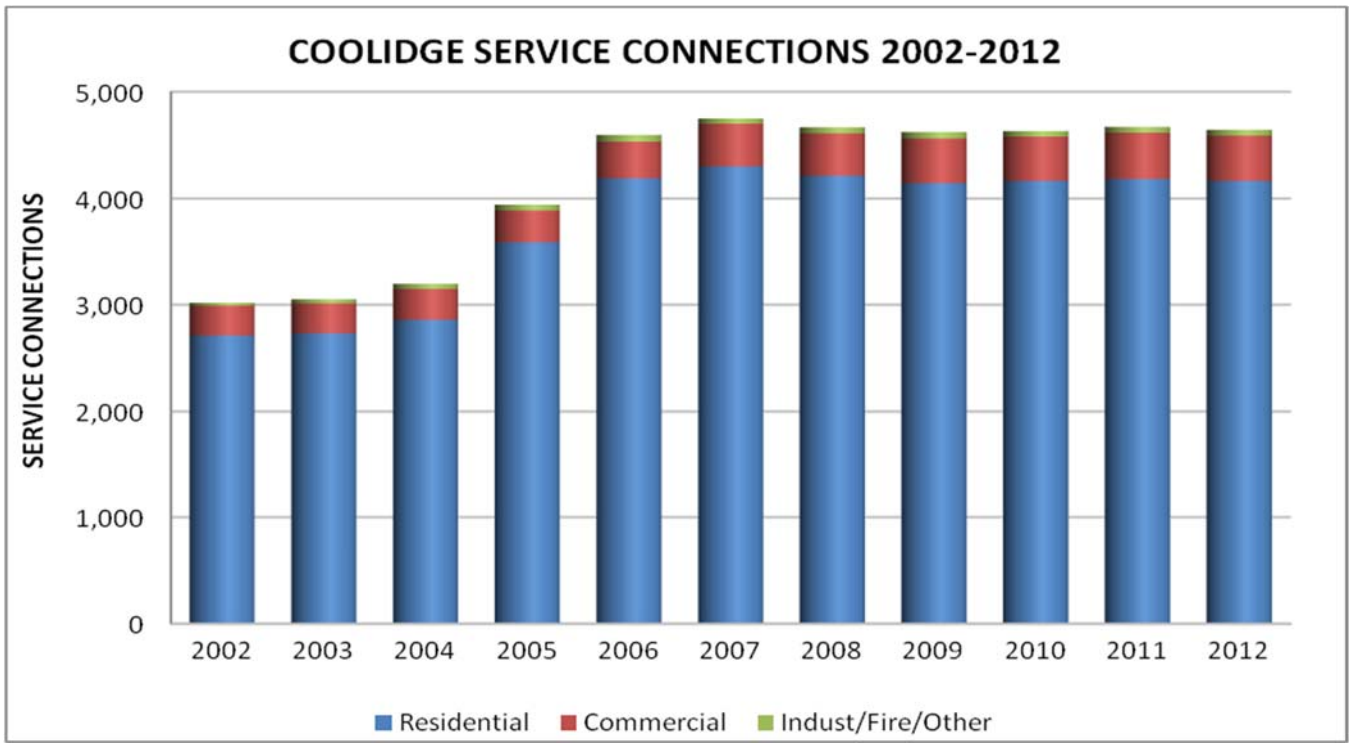
Water Resources Element

SERVICE CONNECTIONS

At the end of 2012, AWC's Pinal Valley water system provided water service to about 27,850 service connections of which more than 4,600 are in the City's planning area. 90% of the service connections are residential; 9% are commercial; the remaining 1% are either industrial, private fire service or other types of non-residential service.

In the past ten (10) years, AWC has added over 1,600 new service connections within the City's planning area. Growth during this time has resulted in a 54% increase in the number of residential service connections and a 56% increase in the number of commercial and other non-residential service connections, as illustrated in Figure 7.2. The majority of this growth occurred between 2004 and 2006. Since 2007, growth has been flat.

Figure 7.2 : Arizona Water Company Service Area Connections by Type



The other water companies within the City's planning area: Signal Peak Water Company, Carter Water Company, and Woodruff Water Company collectively have less than sixty service connections. There has been very little or no growth in these three water companies' service areas.

GROUNDWATER SUPPLY

Within the City's planning area, AWC currently provides water from seven groundwater wells located in the Coolidge area and from one groundwater well located in the Casa Grande area, through a 16-inch water main located on the west side of Coolidge. These eight wells have a combined supply capacity of over 5,000 gallons per minute ("GPM") or 7.73 million gallons per day ("MGD"), as shown in Table 7a, below.

Table 7a: Well Identification and Source Capacity

Source of Supply	ADWR Well ID Number	Source Capacity (GPM)	Source Capacity (MGD)
Well No. 7	55-616606	1,100	1.60
Well No. 9	55-616608	1,240	1.80
Well No. 10	55-616609	1,430	2.00
Well No. 27	55-568553	455	0.65
Well No. 1 VF	55-616686	250	0.36
Well No. 2 VF	55-616687	250	0.36
Well No. 1 CL	55-620899	350	0.50
Well No. 2 CL	55-620900	320	0.46
	TOTAL	**5,395 GPM**	**7.73 MGD**

Woodruff Water Company has one well with a maximum pump yield of 1,760 GPM and Carter Water Company has one well with a maximum pump yield of 20 GPM. Signal Peak Water Company has no wells. Instead AWC supplies water to Signal Peak Water Company from a connection to AWC's Pinal Valley water system.

TREATMENT & STORAGE

AWC's 7.73 MGD of source capacity located within the City Planning Area includes one 1.4 MGD nitrate treatment facility and one 0.7 MGD arsenic treatment facility. The remaining water sources comply with the safe drinking water requirements without treatment, other than chlorination.

Within the City's planning area AWC currently has eight water storage tanks with a combined capacity of over two million gallons. Five of the water storage tanks are centrally located within or near the center of the City. The remaining three water storage tanks are located at Valley Farms, Coolidge Airport and at the Well No. 27 site near Overfield and McCartney Roads.

Carter Water Company has one 2,500-gallon water storage tank for its service area. According to the annual reports on file at the ACC, Woodruff Water Company and Signal Peak Water Company do not list any water storage tanks.

Water Resources Element

WATER CONSERVATION REQUIREMENTS - BEST MANAGEMENT PRACTICES

As part of the ACC and Arizona Department of Water Resources ("ADWR") Best Management Practices, AWC proposed and the agencies approved the following ten water conservation programs for AWC in the City's planning area:

1. **Public Education Program**
2. **Residential Audit Program**
3. **Customer High Water Use Notification**
4. **Customer High Water Use Inquiry Resolution**
5. **Water Waste Investigations and Information**
6. **Special Events/Programs and Community Presentations**
7. **New Homeowner Landscape Information**
8. **Landscape Consultations**
9. **Leak Detection Program**
10. **Meter Repair or Replacement Program**

The first eight water conservation programs are customer-oriented conservation measures. The Leak Detection and Meter Repair or Replacement Programs are water conservation measures AWC uses to monitor and control water loss.

AWC's Leak Detection Program utilizes visual inspection as well as state of the art electronic leak detection equipment to quickly identify leaks and breaks. Consequently, leaks and breaks can be identified quickly and repaired in a timely manner, thus reducing water loss.

AWC's Meter Shop, located in the Coolidge, has established specific meter replacement criteria based on total gallons and years in service. Meter Shop employees also perform periodic testing of meters both while in service and after replacement to provide an ongoing assessment of the current replacement criteria. In this manner, AWC thereby ensures that meter accuracy is maintained and confirmed.

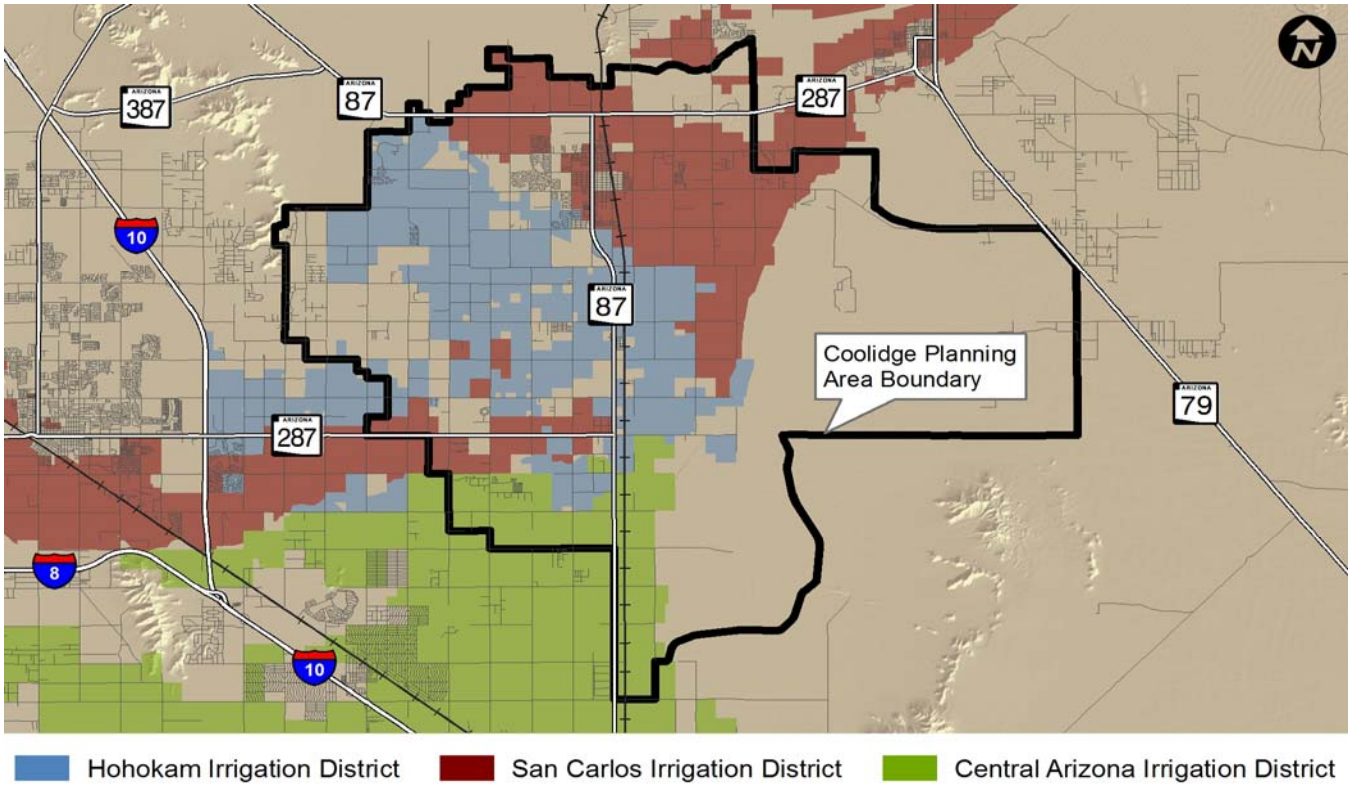
In addition to the water conservation measures described above, the City requires that any new and expanded development adhere to the plumbing guidelines outlined in the *2006 International Plumbing* Code, which provides specific criteria for low-flow water fixtures and appliances. Also, Article XII of the *City of Coolidge Zoning Code* promotes water conservation with specific landscape design and maintenance requirements for all new and expanded developments within the City. Included in Article XII is a low water use plant list which includes a wide variety of trees, plants, shrubs and grasses indigenous to arid regions.

ADDITIONAL SOURCES OF SUPPLY

In addition to the available groundwater supply within the City's planning area, several other sources of supply are available. AWC currently has Central Arizona Project ("CAP") water allocations for its Pinal Valley water system. These municipal and industrial CAP subcontracts entitle AWC to 2,000-acre-feet and 8,884 acre-feet respectively of CAP water per year for AWC's Coolidge and Casa Grande areas, respectively. The other three water companies in the City's planning area do not have CAP allocations.

Hohokam Irrigation and Drainage District ("HIDD") provides irrigation water for 41 square miles of agricultural land within the planning area. San Carlos Irrigation and Drainage District ("SCIDD") provides irrigation water for 35 square miles of agricultural land within the planning area. Central Arizona Irrigation and Drainage District ("CAIDD") provides irrigation water for 14 square miles of agricultural land within the planning area. Figure 7.3 shows the service area for each irrigation and drainage district.

Figure 7.3 : Irrigation and Drainage Districts



HIDD receives 47,303 acre-feet of non-Indian agricultural CAP water per year. HIDD also banks over 85,000 acre-feet of water annually for the Arizona Water Banking Authority. When available, SCIDD also has the ability to receive and deliver over 100,000 acre-feet of Gila River water annually. SCIDD delivers over 35,000 acre-feet of CAP water annually for agricultural irrigation. CAIDD delivers 325,000 acre-feet annually for agricultural irrigation; 124,000 acre-feet come from CAP allocations.

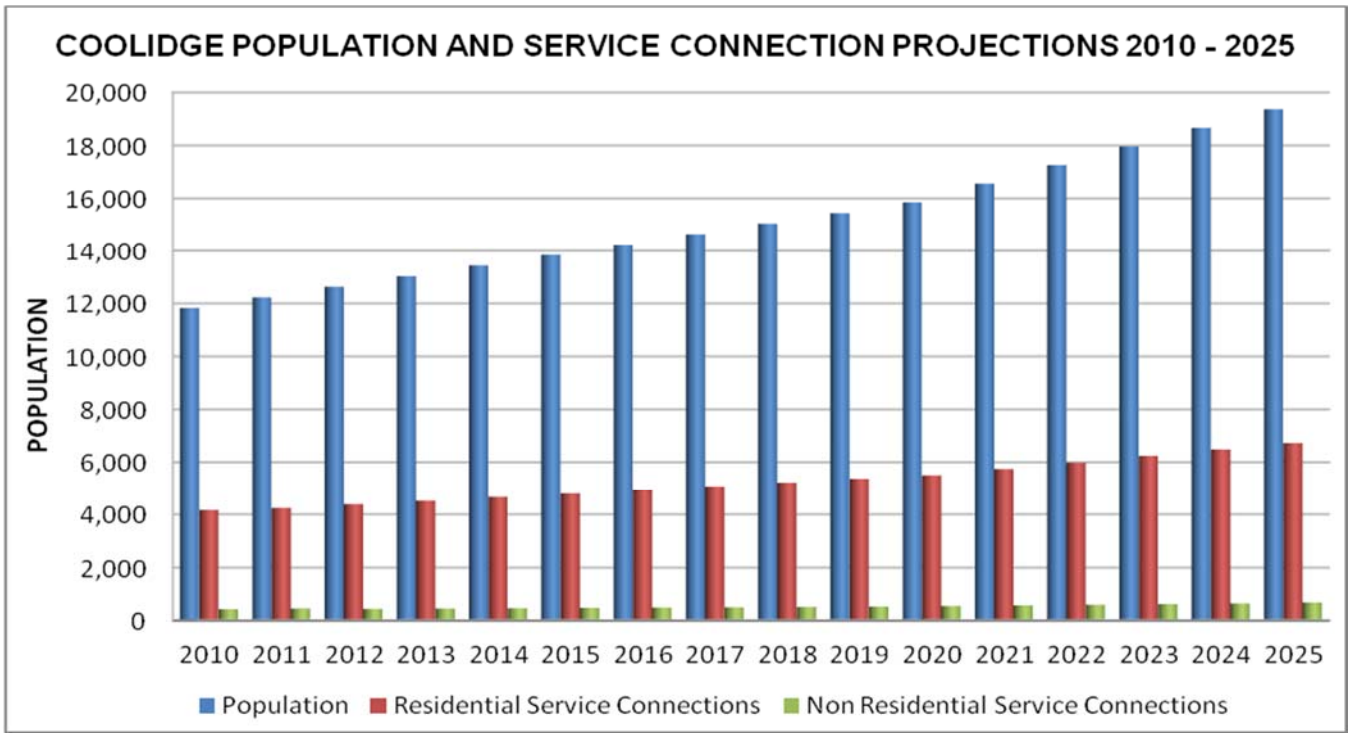
The City's wastewater treatment facility receives and treats up to 1 million gallons per day. The treated reclaimed water is then delivered to adjacent farms for non-edible crops.

Water Resources Element

POPULATION & SERVICE CONNECTION PROJECTIONS

The 2010 census data estimates an average of 2.88 persons per household in the City's planning area. Central Arizona Governments ("CAG") estimates a growth rate of 3.4 percent between 2010 and 2020, and 4.45 percent between the 2020 and 2025. Based on this population per household and growth rate data, the City estimates its planning area could have a population of over 19,000 by the year 2025. Utilizing the same census data, there could be over 6,700 residential and nearly 700 non-residential service connections in the City's planning area by the year 2025.

Figure 7.4 : Coolidge Planning Area Projections 2010-2025



WATER DEMANDS

Current Demands

Annual water demands within the City have grown from nearly 550 million gallons in 2002, to nearly 800 million gallons in 2012, representing a 46% increase in annual water demands during this time period. The majority of this increase in water demands occurred between 2002 and 2007. Since 2007, demands have been stable. Figure 7.5 shows the historical water demands from 2002 through 2012.

Projected Demands

Based on AWC's 2012 average water demands for customers within the City and surrounding areas and CAG estimated population growth rates, AWC estimates water demands could be over 1.2 billion gallons per year by 2025 for the Coolidge area. As stated previously, growth will predominantly occur in Zone 1 within the City's planning area. Figure 7.6 shows the projected water demands from 2012 through 2025.

Figure 7.5 : Coolidge Historical Water Demands

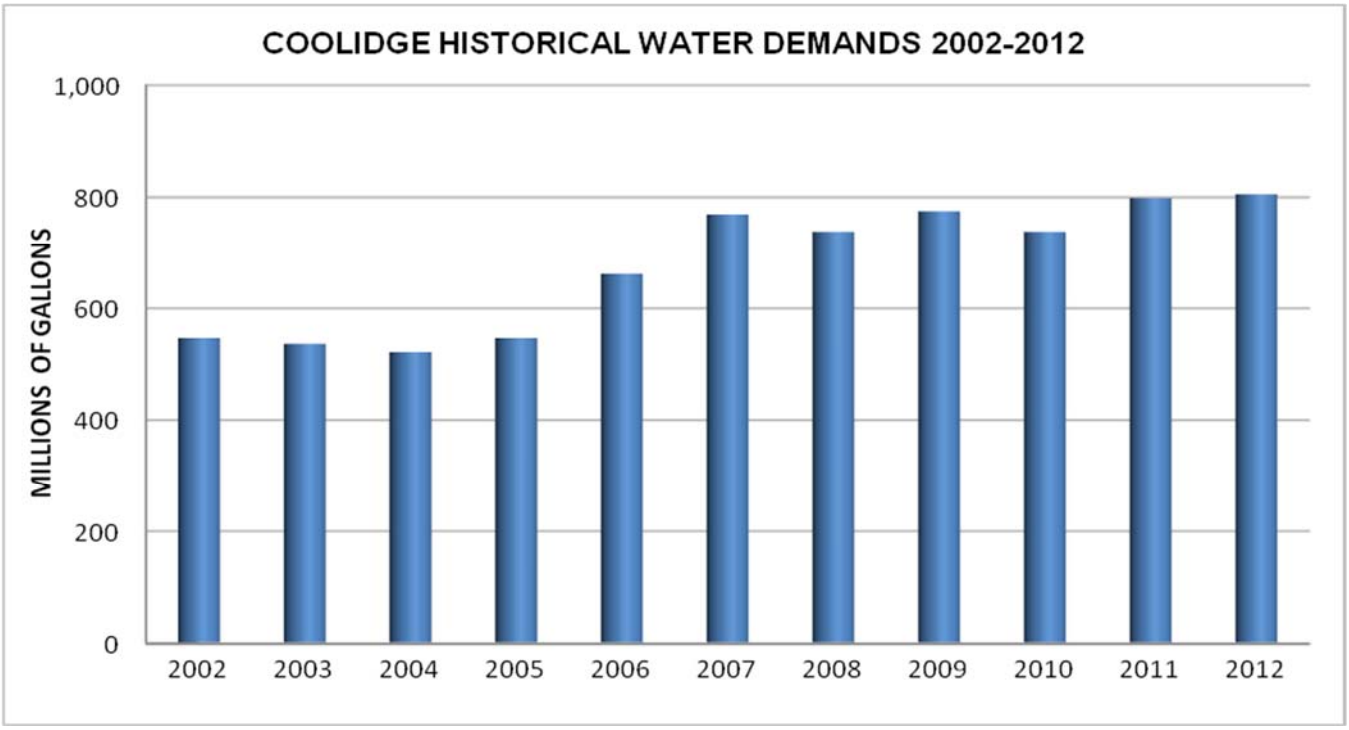
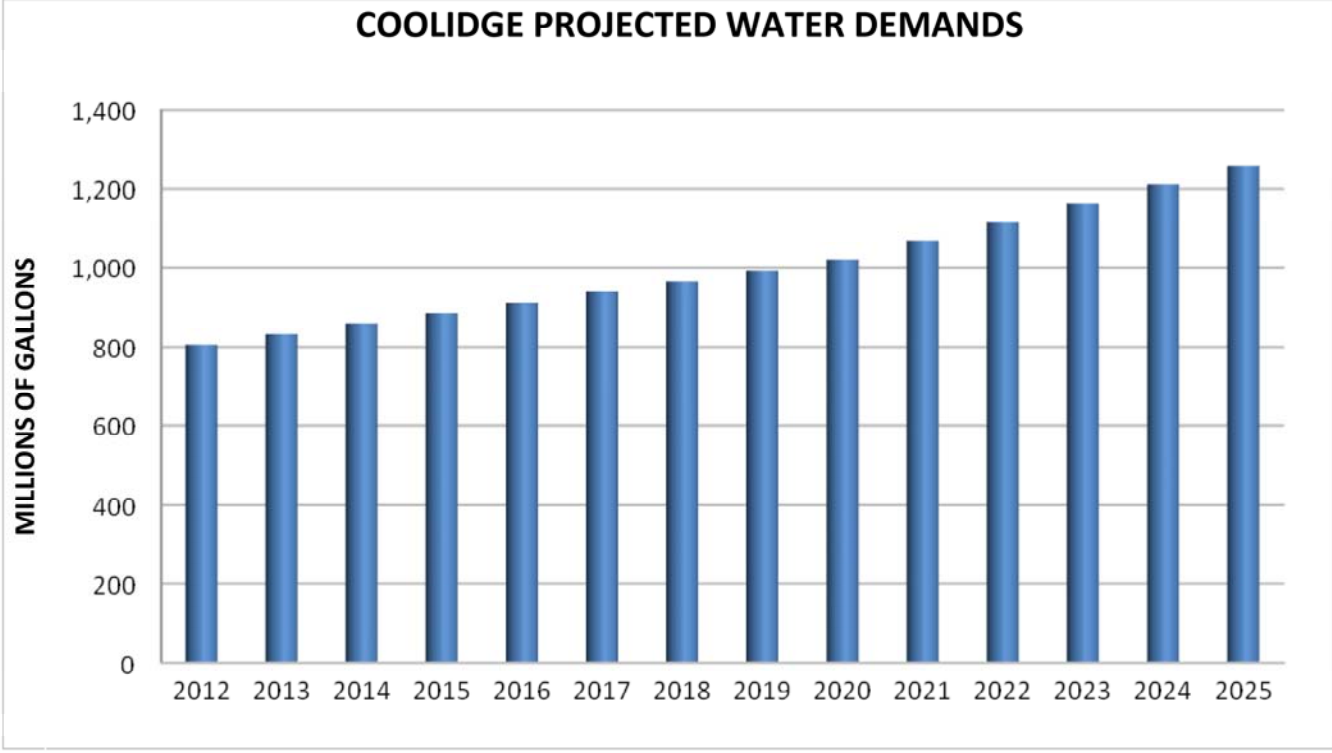


Figure 7.6 : Coolidge Projected Water Demands



Water Resources Element

FUTURE PLANNING

Short-Term Planning

To meet the projected annual demands of 1.2 billion gallons in 2025 for the City's planning area, by 2025 it will be necessary to acquire or develop additional sources of supply. To meet these new demands, AWC plans to drill and equip six wells within the City's planning area. These six new wells will be funded primarily by developers as part of developing new subdivisions. The new wells are needed to meet the projected demands of these new subdivisions.

AWC is also developing a plan to use its CAP water allocation through groundwater recharge, storage and recovery. Recharge is accomplished through direct basin recharge, either by spreading CAP water in ponds to percolate down through the soil, to be stored in local groundwater basins or pumping CAP water through injection wells directly into the groundwater basin. In both instances, the CAP water is stored in what is known as an Underground Storage Facility ("USF"). AWC then recovers the stored CAP water through its recovery wells and delivers it to AWC's customers in Coolidge and elsewhere in the Pinal Valley water system.

Long-Term Planning

AWC also has identified several long-terms plans to meet the growing demands in the City's planning area as further described below.

AWC will utilize the full amount of its CAP water allocations and, if necessary, acquire additional CAP water allocations as they become available. AWC has a site in the southern portion of the City's planning area (Figure 7.7) to utilize its CAP water. AWC has plans for a CAP surface water treatment facility at this site, which would employ best available treatment technology for direct potable use. AWC extended the schedule for the CAP surface water treatment facility originally scheduled for 2012 because of the severe downturn in homebuilding in Pinal County. Meanwhile, AWC will design and operate facilities at this site to recharge, store and recover CAP water as a lower cost method of using CAP water until a treatment plant is needed.

Under this plan, AWC will take delivery of CAP surface water from a planned 24-inch transmission main from the CAP canal to the recharge site. The CAP surface water will flow into one or more recharge basins and percolate into the groundwater basin and be stored pursuant to a USF permit from ADWR. AWC will recover stored CAP surface water from wells at the recharge, storage and recovery site and from other wells in the AWC Pinal Valley service area, pursuant to recovery well permits from ADWR. The water recovered from the on-site wells will flow from the site through a 36-inch transmission main to the Pinal Valley water system. The groundwater recharge, storage and recovery facility will assure long-term availability of sustainable water supplies for AWC's customers in Coolidge and elsewhere in the Pinal Valley water system.

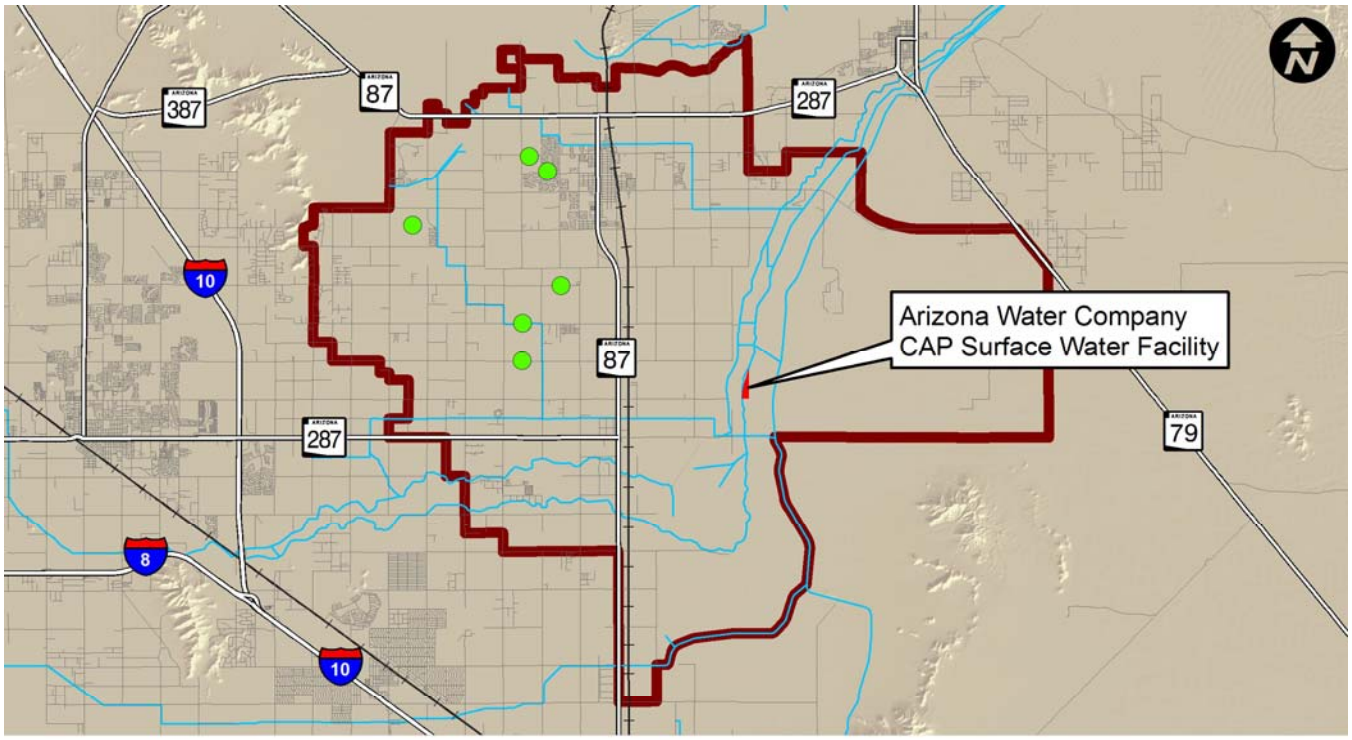


Figure 7.7 : Future Water Demand Planning

Future Well Sites — Canals — City of Coolidge Planning Area

The City's wastewater reclamation facility will also provide another source of water for the City's planning area. While currently treating up to one million gallons per day, the water reclamation facility has an expansion capability of up to four million gallons per day which could be delivered to additional agricultural users. Upgrades to the City's wastewater reclamation facility to Class A+ quality reclaimed water will also allow reclaimed water to be recharged into groundwater basins. Other long-term plans for additional supplies within the City of Coolidge planning area will focus on the conversion of water used for agriculture to municipal/industrial uses.

City of Coolidge Wastewater Treatment Plant

I have never yet seen any plan which has not been mended by the observations of those who were much inferior in understanding to the person who took the lead in the business.

-Edmund Burke